Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

FIELD WORK—THE CHICAGO AREA.

FIELD work is a study of the surface of the earth and the life that inhabits it. Its purpose is to enlarge and intensify the sense-experience, alertness, and intelligence of students by direct contact with their nature environment. Its position in school work should be determined by our estimate of the value of individual contact, observation, sense-experience, and judgment on intelligence and development. Its keynote is individual interest; the crucial point, pedagogically, is that the mental movement aroused by direct observation and experiment shall not be obstructed or dissipated by reading and teaching explanations. Reading, pictures, recitations as aids should intensify, enlarge, and continue mental concepts, but never, as they all too frequently do, convert the mental movement, induced by experience, into acts of formal memorizing.

Every environment offers a greater or less range of opportunities for original experience and inference. It is essential in our school work that we see to it, especially in cities, that indoor equipment is not looked upon as a substitute for outdoor experience. Each has its proportioned place, the balance of which should be maintained by the school curriculum. The possible detail and range of field work is, to a degree, limited by heterogeneity of environment; a region of considerable variety of contour will offer more than an unbroken plain.

Earth contour.— In the evolution of the earth, its surface has been molded by the forces of diastrophism, vulcanism, and gradation, into mass features (topographic forms) known as mountains, plateaus, and plains. These mass forms are marked by a greater or less number of minor rugosities, known, according to their genesis, form, and content, as —

1. Shores and beaches, with their associations.
2. Lakelets, lagoons, swamps, with their associations.
3. Gullies, ravines, valleys, with their associations.
4. Hummocks, hills, ridges, with their associations.
5. Levels, flats, plains, with their associations.

As to vegetation, these areas may grade from barren to dense forest. As to moisture, they may grade from almost complete aridity to saturated humidity.

Local field work has to do with an acquaintance and investigation of these type areas, and their gradations as to their physiognomy, contour, genesis, mineral content, and the occurrence, distribution, habits, adaptations, and controls of their plant and animal life.

These areas may be considered unit environments. The mental content resulting from a general and detailed study of each type should, to a degree, correspond to the true interrelations of the area; *i. e.,* if the action of certain forces gives rise to contour, and contour modifies the physical conditions of moisture, temperature, light, air (winds), and these in turn exert an influence on plant and animals, etc., then the mental content of study should lead to an intelligent appreciation of these interrelations. The breaking of this unity, in the earlier stages of school work, by isolating studies of physiography, botany, zoölogy, etc., instead of building up unity through their interrelations, reduces greatly the effectiveness of our teaching and student effort. The key to this unity is in (1) the character of the class work, and (2) some organized system or method of preserving, for future reference, the essential results of student observations and experiences.

Educating is an accumulative process. In all accumulative processes we need to eliminate the possibilities of leakage and waste. This waste has always been a most prominent factor in the educating process. The key in eliminating waste is in progressive unity. This principle has long been recognized. Text-books have always aimed at progression, but in our use of them we have largely eliminated individual initiative, sense-experience, and judgment of pupils, and reduced them to memorizing automatons. In our return to a type of work of rich subject content, and which at the same time admits of a wide range in cultivating individual initiative and sense-experience, we are losing much, by general leakage and disintegration, from lack of organized direction. This lack of unity or continuity is especially prominent in the passage from one grade or year to another. We need some unifying centers or principles which will aid us in selecting and accumulating the, year to year, essential educational experiences of students. We have failed in our efforts to have students conform to a system. I take it that our next move is in organizing and developing a system which will conform to the normal, natural work of students. This system must find its basis in the broader generalizations of modern science and sociology, the keynote of which is unity.

The details and stages of progress in field work need more consideration than has yet been given them. They must yield largely to the nature of the environment and the individuality of teacher and students. The stages may be enumerated as —

1. The primary, when pupils visit various areas and become acquainted with their content of minerals, plants, animals, satisfying their instinct of curiosity, developing sense alertness and acuteness, accumulating an acquaintance, and love for outdoors and what it offers, and receiving the mental and physical benefits insured by these experiences. They return to the school accompanied by materials to be used in the schoolroom for furthering their observations and experiences, and to aid in the development of adequate skill and efficiency in various forms of expression.

2. This work grading to more specialized work in observation, experiment, and investigation as to the nature of forces, conditions of control, properties of various materials, animal and plant habits, morphology and

physiology, change of environment and adaptation, culminating in an intelligent appreciation of the fundamental principles of progressive change and readjustment in environment.

3. Period of specialized investigation or research. The results, in terms of human knowledge and skill, should be the ability to approach intelligently the problems, pure science and economic, relating to any environment, and the skill to command and use such facilities, as the times offer, to aid in their true solution. It is constant return to old materials with new problems and interests requiring more extended and minute investigation — the work always continuous.

THE CHICAGO AREA.

The five type-regions enumerated and evidence, past or present, of the surface-molding forces — wave action, running water, wind, glaciation, diastrophism (all except vulcanism) — are easily accessible in the Chicago area. The opportunities offered by this region for wide range in field work are exceptional.

GENERAL OUTLINE FOR A STUDY OF SOME OF THE TYPES OF THIS AREA.

SHORE TOPOGRAPHY — EROSION TYPE.

(Glencoe-Lakeside region — Highwood Quadrangle.)

This region affords excellent opportunities for the study of a shore bluff:

1. Distinguishing features indicating the genesis of the bluff. Face of bluff recently exposed or old.
2. Conditions determining the influence of waves as an erosion force.
3. Details of the method by which waves develop a bluff. Limit of height. Conditions determining slope, rate of erosion.
4. What disposal is made of the products of bluff erosion? Trace, through successive stages, coarse materials, fine materials.
5. Compare the mineral contents of the bluff with the mineral content of the strand.
6. Account for the presence of the bluff materials in the area.
7. How does erosion influence vegetation? How does vegetation influence erosion?
8. List the plant life occupying (*a*) the strand, (*b*) the bluff face, (*c*) the top.
9. Enumerate the conditions of each region favorable to plant life; unfavorable.
    a) What societies predominate?
    b) Examine the physical conditions of the soil.
    c) Do the physical conditions of the soil of the strand or bluff influence plant rooting?

d) Enumerate plant habits and structures which may be considered adaptations to environment.[1]

10. Enumerate animal life common to the strand and bluff. What type of animals are attracted to a bluff region?
11. Along an erosion coast, what region is destructive to life; what region favorable to the expansion of life?

SHORE TOPOGRAPHY — BUILDING TYPE.

(Seventy-ninth Street, Edgemoor and east — Toleston Quadrangle.)

1. Evidence that this is a building coast.

a) Are there any evidences of shore erosion? In a region where there is evidence of erosion and deposition, how is the type of coast to be determined?

2. Conditions determining the deposition of wave materials.

a) Mineral content of this strand material.

b) Possible source of this material; evidence.

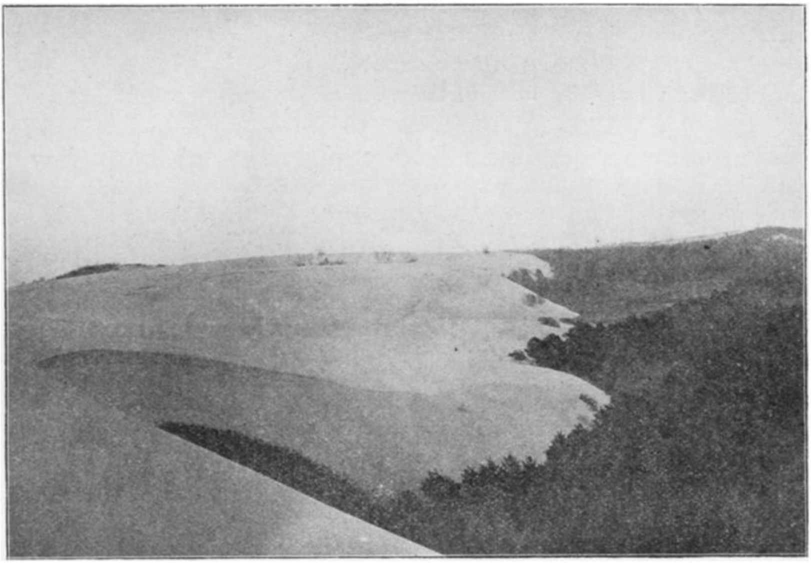
c) Detail study of waves and deposition.

---

[1] The plants of this region may be grouped into the three societies: Hydrophytes, Mesophytes, Xerophytes (see COULTER, *Plant Relations*, p. 170).

REFERENCES: Gilbert, *Fifth Annual Report*, U. S. Geological Survey; Davis, *Physical Geography*; Chamberlin and Salisbury, *Geology*, Vol I, pp. 323-61.

3. Transportation of strand materials, direction of movement, effect of transportation on materials.
4. Land forms resulting from wave deposition.
5. First plants to occupy this newly formed land.
   a) Conditions favorable to plant life.
   b) Conditions unfavorable to plant life.
   c) Succession of plants to complete covering of vegetation.
   d) Habits and structures that you consider adaptations favorable to environment. What plant societies predominate?
6. Animal life characteristic of the area.
   a) Conditions attracting animal life to the area.



   b) Habit and structural adaptations of animals to this type of environment.
7. Along a building coast, what section of the region is destructive to life, what section favorable to the expansion of life?

REFERENCES: See under erosion type.

WIND-MOLDED TOPOGRAPHY — SAND DUNES.

(Millers-Dune Park region — Toleston Quadrangle.)

1. Physiognomy of a dune topography.
   a) List the characteristics of a wind-molded topography: (1) which constructive; (2) which destructive?
2. Relation of wind direction and force to dune movement, contour, elevations, and depressions.

  a) How does the sand move?
  b) Angles of slopes and their significance.
3. Relation of present dunes to previous landscape and topography.
  a) Mass movement of dunes, evidence of; how?
4. Plant life as related to dune area.
  a) Variety of plants growing on the dunes.
  b) First plants growing on the dunes. Ways in which plants gain possession of dunes. History of development of plants on a dune area.
  c) Characteristics of these dune plants.
  d) Plant forms — rooting, rate of growth, stem growths.
  e) Dominant society of the area.
  f) Plant habits and structures which may be considered adaptations to the area. Conditions favorable and unfavorable to plant life.
5. Animal life living within the area — list.
  a) Conditions attracting it to the area.
  b) How it maintains itself in the area.

REFERENCES: Cornish, "Formation of Sand Dunes," *Geological Journal,* March, 1897, p. 278; May and June, 1898, pp. 528 and 628; Chamberlin and Salisbury, *Geology,* Vol. I, pp. 23-35; Cowles, *Ecological Relations of the Vegetation on the Sand Dunes of Lake Michigan; Geological Survey of Indiana,* 1897, pp. 40-100.

RAVINE TOPOGRAPHY.

(North Chicago. For type of topography see Highwood Quadrangle.)

A detailed study beginning at the head of the ravine:

NOTE.— Consider the genesis of this topography; evidence that it is the result of stream erosion; how a ravine grows in length, depth, and width; conditions for the starting of a ravine; stream permanent or intermittent, conditions controlling; disposition of eroded materials.

I. *Head of Pettibone Creek.*— (This area is chosen on account of a few special features. The ravines of Lakeside, Glencoe, and Ravinia are equally instructive.)
  1. Detailed topography of the area above the head of the ravine.
    a) The dominant plants of this border area; their soil and moisture condition — at time of observation, at beginning of growing season. What visible influence has variation in moisture conditions upon the plants of this area?
  2. Forms of animal life common to this border area; those actually seen; those not seen, but their presence indicated by tracks, burrows, or nests. The special features — food, water, homes, hiding places — attracting the various animals to the area. Do these animals spend the entire year in this area? The food of these animals; their method of locating and prehending it. Is their food available during the entire year?

II. *Area between ravine head and intermittent spring area.*

1. Observe the exact changes that occur in the back area as the head of the ravine advances inland; in topography; in plant species; in luxuriance of plant growth; in evenness of distribution in the area. What factors, influencing plant growth, are modified by this change from a level to a ravine topography? Are the conditions more favorable to plants in one part of the ravine than in another? Consider direction of slope, steepness, base, and top.
2. Has the change to a ravine topography been favorable to any animals not found in the border area? Has it been unfavorable to any animals of the border area?

III. *Spring to permanent stream—Conditions for permanent stream.*

1. Most noticeable influence of springs on topography, plant life, animal life. Plants found in this area and not common to any of the previous areas. Plants of this area common to former areas. What change in conditions has favored new plants? Do the conditions in any part of this area exclude plants found in the areas above this point? What influence has alternate flooding and drying upon the plant and animal life? Are any of the plants confined to a particular aspect of the area; around head of spring, in marsh below the spring, base of slope, top of slope?
2. Animal life found in the spring; forms living on the water surface or swimming through the water; those living on the bottom. Animals living in the marsh below the spring; those confined to the water; those alternating in and out of water; those reaching water by burrowing. The method of locomotion of these various animals; their probable way of entrance to the area; the nature of their food. (Secure living specimens for aquaria and cage study.)

IV. *Permanent stream area.*

1. Consider the various ways in which the stream has developed its topography; the plant life associated with each topographic feature at different stages of development.
    - *a*) Bare bluffs, caused by land slides on account of basal erosion; plants first gaining foothold on this bared area; plants that succeed each other until the area reaches its highest stage of plant development. What changes in growth conditions occur at each progressive stage? Observe the use made of these bluffs by animal life.
    - *b*) Deposition of sediment forming a mixed clay, sand, and gravel flood plain; plants gaining a foothold on this area; succeeding plants, until the area reaches its highest stage of plant development. Compare with plant development of bluff. What factors of growth most influence the plants of the flood-plain area? Are these allu-

vial deposits used as feeding grounds, nesting places, or resting places by animals?

c) Lagoon from a deserted stream bed or cut-off: Plants first entering this area; compare with plants along the flowing stream; succession of plants in the dying out of the lagoon. Probable way in which these new plants find their way into the area? Animal life common to the lagoons; compare with permanent stream life; with the spring life. In what respects do conditions for living differ? Do the animals show any corresponding variation in habit or structure? Consider influence of current; gravelly or muck bottom; stagnant water; enemies.

V. *Stream mouth and lower flood plain area.*—(Stream bed cut to lake level; current stagnant one-fourth mile inland; wide flood plain.)

Plants in the stream not found in the upper areas; floating, or rooted on the stream bottom. Compare the plants found on this level flood plain with the plants of the level area at the ravine head. In what respects do growth conditions differ? Be on the alert for indications of animals; look for tracks in the soft banks along the stream; explore the thickets for birds. Are the conditions more favorable to animals here than in the upper valley?

REFERENCES: Salisbury and Alden, *Geography of Chicago and Environs;* Cowels, *The Plant Societies of Chicago and Vicinity;* Jordan, *Animal Life;* Furneaux, *Life in Ponds and Streams;* Gaye, *The Great World Farm.* Chamberlin and Salisbury, *Geology,* Vol. I, pp. 53-200.

LAGOON-MARSH TOPOGRAPHY.

(Sixty-Seventh Street and Jackson Park; various regions in south of the Chicago area — Chicago and Calumet Quadrangles.)

1. Various names by which this type of physiography is known.
2. Conditions essential to its existence.
   a) Topographic conditions.
   b) Moisture conditions.
3. Ways in which the essential topographic conditions may originate.
4. Probable genesis of the particular swamp visited. Has its area varied since its origin? Evidence.
5. Mineral and soil content. (Examine soil by driving gas or bicycle tubing to various depths and withdrawing the soil.)
6. Plant life of the swamp and its zonal distribution.
   a) Zone of plants nearest the water center.
   b) Zone of plants rooted within the permanent-water margin.
   c) Zone of plants along the fluctuating water margin.
   d) Plants beyond the water margin.
7. Plant habits and structures which may be considered adaptations to the conditions of each zone — aquatic, amphibian, terrestrial.

8. Relic vegetation.
9. Animal life common to the area.
   a) Its zonal distribution — aquatic, amphibians, terrestrial.
   b) Habits and structures as adaptations to this type of area.
10. Topographic life-history of this type area.
    a) Original appearance of the area at its genesis.
    b) First changes to occur.

    c) Possible first plants to appear in the water area, the margin area, the terrestrial border. Continued succession of plants and their influence on the swamp.
    d) Possible first life to appear in the area, its adaptation and succession, and its influence on the area.
11. Economic aspect of swamps.

REFERENCES: Furneaux, *Life in Ponds and Streams;* Needham, *Aquatic Insects of the Adirondacks;* Baker, *The Mollusca of the Chicago Area;* Needham and Hart, *The Dragonflies of Illinois;* Cowles, *Plant Societies of Chicago;* Coulter, *Plant Relations;* Elliott, *North American Shore Birds; Geological Survey of the State of Indiana,* 1899.

IRA B. MEYERS.

THE UNIVERSITY OF CHICAGO
College of Education.